

AMENDMENT TO THE CLAIMS:

Please cancel Claims 12 and 13 without prejudice or disclaimer, and amend Claims 1-11, 14-22 and 24-27 as follows:

Claim 1 (currently amended): A grid falling film devolatilizer, ~~consisting of~~ comprising:

a tower housing ~~(1)~~ having a round, square or rectangle cross section;

a liquid distributor ~~(2)~~ for distributing liquid within said tower housing; and

~~a tower internal (3)~~ one or more internal towers arranged in said tower housing in a parallel manner, for continuously forming and regenerating a large surface of film material using the liquid supplied by said liquid distributor;

wherein each said internal tower has four corners and four pillars standing at the four corners of said internal tower, respectively, and multiple grid trays supported by said internal tower and numbering in the range of between 2 to 500, and each pair of neighboring grid plates having an interval in the range of about 20 to 500 mm;

~~wherein the said tower housing has a round, square or rectangle cross section~~;

~~the said tower internal consists of pillars (3-1) and multiple grid trays (3-2), and four pillars stand respectively at the four corners of the tower internal which has a square or rectangle cross section~~;

~~there may be a single one or multiple tower internals arranged parallelly in the tower housing~~;

~~the number of the grid trays is 2 to 500 and the layer interval between two neighbor grid plate layers is 20 to 500mm~~;

wherein each said grid tray ~~comprises~~ includes a pair of beams (3-2-1), a plurality of grid bars (3-2-2) and corresponding guide members (3-2-3);

wherein said beams are located at opposite pair of sides of the said grid tray, in a horizontal plane of same height, and are fixed to the said pillars;

wherein the said grid bars are fixed perpendicularly to the said beams and are arranged in either single tier, double tiers or multiple tiers in a parallel manner;

wherein the said grid bars have a cross-section of triangle, reverse "V" shape ~~formed by bending thin metal strips, circle or other shapes~~;

wherein said guide members ~~consist of~~ include the guide mesh (wires) (3-2-3-1) and the a clamp (3-2-3-2) for fixation of the said guide mesh (wires); and

wherein said guide members are disposed at ~~the~~ a grid gap between the said two neighboring grid bars plates and parallel to the said grid bars plates, and the said corresponding clamps are fixed to the said beams; and

wherein the outmost grid bars in a each said grid tray are formed as inclines or bent strips (3-2-2') which present a larger vertical surface and serve as baffles for keeping liquid level in grid tray; ~~or the clamps of the outmost guide members in a each said grid tray are extended so as to be higher than others-~~ other said clamps and serve as baffles for keeping the liquid level in grid tray.

Claim 2 (currently amended): A The grid falling film devolatilizer according to Claim 1, wherein hangers (3-1-1) are provided on the upper part of the pillars (3-1) and supporting brackets (1-2-1) are provided on the upper part of the tower body (1-2) housing; wherein said the hangers are mounted on the said supporting brackets and fastened with bolts, so that the said internal tower internal (3) is mounted inside the said tower housing; and wherein the locating blocks (3-1-2) are provided on the lower part of the said pillars and the matching stoppers (1-2-2) are provided on the lower part of the said tower body housing for limiting the swing of the bottom of the said internal tower internal.

Claim 3 (currently amended): A The grid falling film devolatilizer according to Claim 1, wherein the number of the said multiple grid trays (3-2) is from 5 to 200 and the said layer interval between two neighboring grid trays is from 40 to 250mm.

Claim 4 (currently amended): A The grid falling film devolatilizer according to Claim 1, wherein the said grid bars in two neighboring grid trays are arranged in ~~the following manners a manner selected from the group consisting of:~~ a) arranged in the same direction but staggered by half a film interval; b) cross at 90 degrees; and c) a hybrid of a) and b).

Claim 5 (currently amended): A The grid falling film devolatilizer according to Claim 1, wherein said guide meshes (~~wires~~) are woven metal wires, metal sheets, perforated metal sheets, expanded metal meshes, tube array or non-metal meshes; and wherein said the guide meshes (~~wires~~) can be directly fixed below the said grids, eliminating the said clamps.

Claim 6 (currently amended): A The grid falling film devolatilizer according to Claim 5, wherein said tube array is formed by joining two corrugated sheets in a face-to-face manner and fixing them with butt welding, and introducing heating or cooling medium thereinto.

Claim 7 (currently amended): A The grid falling film devolatilizer according to Claim 1, wherein an overflowing film-forming mechanism is employed, ~~in which the~~ wherein said clamps are placed at two sides of a grid bar to constitute a grid funnel and ~~the~~ said clamps act as overflow weirs.

Claim 8 (currently amended): A The grid falling film devolatilizer according to Claim 7, wherein a grid bar is disposed above two adjacent clamps that belong to two neighboring grid funnels respectively, and the width of the said grid bar is no less than the interval between the two clamps thereunder; and ~~the~~ wherein said grid funnels (~~or grid bars~~) in two adjacent grid trays cross at 90 degrees, or alternatively are arranged in the same direction while the grid funnels (~~or grid bars~~) are staggered by half an interval of ~~the~~ said grid funnel.

Claim 9 (currently amended): A The grid falling film devolatilizer according to the Claim 7, wherein ~~the~~ said grid funnels in two adjacent grid trays are arranged in the same direction but staggered by half an interval of grid funnel. ~~The interval between two adjacent clamps that belong to two neighboring grid funnels is less than the interval between two clamps of a same grid funnel, or the lower portion of two neighboring guide meshes (wires) that belong to two neighboring grid funnels lean toward each other.~~

Claim 10 (currently amended): A The grid falling film devolatilizer according to Claim 1, wherein the grid bars in ~~the~~ said grid trays are arranged in such a manner that width of grid gaps in said grid trays are gradually increased from top to bottom.

Claim 11 (currently amended): A grid falling film devolatilizer comprising:
a tower housing (1);
a liquid distributor for distributing liquid within said tower housing; (2) and

~~a tower internal (3);~~ one or more internal towers arranged in said tower housing in a parallel manner, for continuously forming and regenerating a large surface of film material using liquid from said liquid distributor;

wherein each said internal tower has

(i) a round, square or rectangle cross section,

(ii) four corners,

(iii) four pillars standing at said four corners of said internal tower, respectively,

and

(iv) multiple grid trays supported within said internal tower and numbering between 2 to 500;

wherein each pair of neighboring grid plates having an interval in the range of about 20 to 500 mm; and

~~wherein the said tower housing has a round, square or rectangle cross-section; and~~

~~wherein said tower internal includes pillars (3-1) and multiple grid trays (3-2), and four pillars stand respectively at the four corners of said tower internal which has a square or rectangle cross-section;~~

wherein each said grid tray comprises a pair of beams, a plurality of grid bars and corresponding guide members.

Claims 12 and 13 (canceled)

Claim 14 (currently amended): The grid falling film devolatilizer of claim ~~13~~ 11, wherein said beams are located at opposite pair of sides of ~~the~~ said grid tray, in a horizontal plane of same height, and are fixed to ~~the~~ said pillars.

Claim 15 (currently amended): The grid falling film devolatilizer of claim 14, wherein said grid bars are fixed perpendicularly to ~~the~~ said beams and are arranged in single tier, double tiers or multiple tiers in a parallel manner.

Claim 16 (currently amended): The grid falling film devolatilizer of claim 15, wherein the said grid bars have a cross-section of triangle, reverse “V” shape formed by bending thin metal strips, circle or other shapes.

Claim 17 (currently amended): The grid falling film devolatilizer of claim ~~13~~ 11, said guide members comprise guide mesh (~~wires~~) (~~3-2-3-1~~) and a clamp (~~3-2-3-2~~) for fixation of said guide mesh (~~wires~~), and are disposed at a grid gap between the two neighboring grid bars and parallel to the grid bars, the corresponding clamps are fixed to the beams.

Claim 18 (currently amended): The grid falling film devolatilizer of claim 17, the outmost grid bars in a said grid tray are formed as inclines or bent strips (~~3-2-2²~~) which present a larger vertical surface and serve as baffles for keeping liquid level in said grid tray; or the clamps of the outmost guide members in a said grid tray are extended to be higher than others and serve as baffles for keeping the liquid level in said grid tray.

Claim 19 (currently amended): The grid falling film devolatilizer according to Claim 11, wherein hangers (~~3-1-1~~) are provided on the upper part of the said pillars (~~3-1~~) and supporting brackets (~~1-2-1~~) are provided on the upper part of the tower housing (~~1-2~~); and wherein the said hangers are mounted on the said supporting brackets and fastened with bolts, so that said internal tower ~~internal~~ (~~3~~) is mounted inside the tower housing; and the locating blocks (~~3-1-2~~) are provided on the lower part of the pillars and the matching stoppers (~~1-2-2~~) are provided on the lower part of the tower housing for limiting the swing of the bottom of the internal tower ~~internal~~.

Claim 20 (currently amended): The grid falling film devolatilizer according to Claim 11, wherein the number of the said multiple grid trays (~~3-2~~) is in the range of from 5 to 200 and the layer interval between two neighboring grid trays is in the range of from 40 to 250mm.

Claim 21 (currently amended): The grid falling film devolatilizer according to Claim ~~13~~ 11, wherein said grid bars in two neighboring grid trays are arranged in a manner selected from the

group consisting of: (a) being arranged in the same direction but staggered by half a film interval; (b) being crossed at 90 degrees; and a hybrid of (a) and (b).

Claim 22 (currently amended): The grid falling film devolatilizer according to Claim 17, wherein said guide meshes (~~wires~~) are woven metal wires, metal sheets, perforated metal sheets, expanded metal meshes, tube array or non-metal meshes; ~~the~~ and wherein said guide meshes (~~wires~~) can be directly fixed below the grids, eliminating ~~the~~ said clamps.

Claim 23 (previously presented): The grid falling film devolatilizer according to Claim 22, wherein said tube array is formed by joining two corrugated sheets in a face-to-face manner and fixing them with butt welding, and introducing heating or cooling medium thereinto.

Claim 24 (currently amended): The grid falling film devolatilizer according to Claim ~~44~~ 13, wherein an overflowing film-forming mechanism is employed, ~~in which the~~ and wherein said clamps are placed at two sides of a grid bar to constitute a grid funnel and ~~the~~ said clamps act as overflow weirs.

Claim 25 (currently amended): The grid falling film devolatilizer according to Claim 24, wherein a one said grid bar is disposed above two adjacent clamps that belong to two neighboring grid funnels respectively, and the width of the said grid bar is no less than the interval between the two clamps thereunder; and ~~the~~ wherein said grid funnels (~~or grid bars~~) in two adjacent grid trays cross at 90 degrees, or alternatively are arranged in the same direction while the grid funnels (~~or grid bars~~) are staggered by half an interval of ~~the~~ said grid funnel.

Claim 26 (currently amended): The grid falling film devolatilizer according to the Claim 24, wherein ~~the~~ said grid funnels in two adjacent grid trays are arranged in the same direction but staggered by half an interval of grid funnel. ~~The, and wherein the interval between two adjacent clamps that belong to two neighboring grid funnels is less than the interval between two clamps of a same grid funnel, or the lower portion of two neighboring guide meshes (wires) that belong to two neighboring grid funnels lean toward each other.~~

Claim 27 (currently amended): The grid falling film devolatilizer according to Claim 41-13, wherein the grid bars in the said grid trays are arranged in such a manner that width of grid gaps in said grid trays are gradually increased from top to bottom.